Claims

[c1] A method of excitation for use during an NMR examination comprising adiabatically conditioning at least a portion of a body with a plurality of radio frequency pulses.

[c2] A method as in claim 1 wherein adiabatically conditioning at least a portion of a body comprises applying said plurality of radio frequency pulses in a sigmoidal manner.

[c3] A method as in claim 2 wherein said plurality of radio frequency pulses are applied in a sigmoidal manner about a ramp.

[c4] A method of excitation for use during an NMR examination comprising:
subjecting a body to an orienting magnetic field;
adiabatically conditioning at least a portion of said body with a first plurality of radio frequency pulses;
exciting said body with a second plurality of radio frequency pulses in a presence of gradient field pulses; and
receiving at least one resonance signal emitted from said body in response to said second plurality of radio frequency pulses.

[c5] A method as in claim 4 wherein adiabatically conditioning at least a portion of said body comprises dampening by apodization a variation of flip angles to cancel a transversal component of a magnetization.

[c6] A method as in claim 5 wherein said dampening is in a form of a Kaisar Bessel type apodization.

[c7] A method as in claim 6 wherein said Kaisar Bessel type apodization has a dampening coefficient approximately equal to 3.

[c8] A method as in claim 5 wherein said dampening is in a form of a Hanning apodization.

[c9] A method as in claim 4 wherein said first plurality of radio frequency pulses are determined via a Shinnar Le Roux algorithm.

[c10] A method as in claim 4 wherein said second plurality of radio frequency pulses are of a steady-state free precession decay type.

[c11] A method as in claim 4 wherein said second plurality of radio frequency pulses are of a fast spin echo type.

[c12] A method as in claim 4 wherein said at least one resonance signal is of a steady-state free precession decay

type.

[c13] A method as in claim 4 wherein said at least one resonance signal is of a fast spin echo type.

[c14] A method as in claim 4 wherein said first plurality of radio frequency pulses have flip angle amplitudes that are less than a final flip angle amplitude used to attain a magnetization of equilibrium.

[c15] A method as in claim 4 wherein number of pulses within said first plurality of radio frequency pulses is less than or equal to 10.

[c16] A method as in claim 4 wherein number of pulses within said first plurality of radio frequency pulses is 8 for a magnetization flip angle of approximately 60°.

[c17] A method as in claim 4 wherein magnetization flip angle as a result of said first plurality of radio frequency pulses is approximately 60°.

[c18] A method as in claim 4 wherein said at least one resonance signal corresponds to a 2D plane section of said body.

[c19] A method as in claim 4 wherein said body is of a cardiac type.

[c20] A method as in claim 4 further comprising conditioning said body via an adiabatic finishing of radio frequency pulses.

[c21] A method as in claim 20 wherein said adiabatic finishing of radio frequency pulses are the inverse of said first plurality of radio frequency pulses.

[c22] A method as in claim 20 further comprising exciting said body with a non-fast excitation-measurement sequence.

[c23] A magnetic resonance imaging system comprising:
a magnet subjecting a body to an orienting magnetic field; and
an antennae adiabatically conditioning at least a portion of said body with a first plurality of radio frequency pulses, said antennae exciting said body with a second plurality of radio frequency pulses in a presence of gradient field pulses;
said antennae receiving at least one resonance signal emitted from said body in response to said second plurality of radio frequency pulses.